CLAIMS

What is claimed is:

1   1.   A laser diode/electro-absorption-modulator (LD/EAM)

2   driver comprising:

3   a cascoded output switch having a pair of output devices

4   and a pair of cascode devices;

5   a resistor providing tail current to the output devices;

6   a predriver circuit receiving an input signal and

7   controlling the output devices;

8   a feedback circuit coupled to the resistor to control

9   the modulation current of the output devices by control of

10 bias on the predriver circuit; and,

11   a common mode feedback circuit providing modulation

12 dependent currents for the predriver.

1   2.   The LD/EAM driver of claim 1 further comprised of a

2   output bias circuit providing for on-chip summation of the

3   modulation and output bias current at a low impedance node of

4   the active cascode device.

1   3.   The LD/EAM driver of claim 1 further comprised of a

2   cascode bias circuit coupled to bias the cascode devices to a

3   bias voltage responsive to the power supply voltage, the

4   output bias current and the modulation current.

1   4.   The LD/EAM driver of claim 3 further comprised of a

2   PTAT bandgap reference circuit to generate biasing currents

3   with positive temperature coefficients for the predriver gain

4   stages.

1   5.   The LD/EAM driver of claim 4 wherein the modulation

2   current is externally adjustable.

1   6.   The LD/EAM driver of claim 1 wherein the modulation

2   current is externally adjustable.

1   7.   The LD/EAM driver of claim 1 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3   current control and the modulation current are externally

4   adjustable.

1   8.   The LD/EAM driver of claim 1 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3   current control and the modulation current are externally

4   adjustable by a single external adjustment.

1   9.   The LD/EAM driver of claim 1 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3   current control and the modulation current are independently

4   externally adjustable.

1   10. The LD/EAM driver of claim 1 further comprised of a

2 pulldown variance circuit coupled to the predriver, the

3 pulldown variance circuit causing a turnoff current of the

4 predriver to be larger than a turn-on current of the

5 predriver.

1   11. The LD/EAM driver of claim 10 further comprised of

2 a PTAT bandgap reference circuit to generate biasing currents

3 with positive temperature coefficients for the predriver gain

4 stages.

1   12. The LD/EAM driver of claim 11 wherein the pulldown

2 variance circuit is responsive to the output of the bandgap

3 reference.

1   13. A laser diode/electro-absorption-modulator (LD/EAM)

2 driver comprising:

3   a cascoded output switch having a pair of output devices

4 and a pair of cascode devices;

5   a resistor providing tail current to the output devices;

6   a predriver circuit receiving an input signal and

7 controlling the output devices;

8   a feedback circuit coupled to the resistor to control

9 the modulation current of the output devices by control of

10 bias on the predriver circuit;

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11   a common mode feedback circuit providing modulation

12   dependent currents for the predriver; and,

13   a cascode bias circuit coupled to bias the cascode

14   devices to a bias voltage responsive to the power supply

15   voltage, the output bias current and the modulation current.

1   14.   The LD/EAM driver of claim 13 further comprised of

2   a PTAT bandgap reference circuit to generate biasing currents

3   with positive temperature coefficients for the predriver gain

4   stages.

1   15.   The LD/EAM driver of claim 14 wherein the

2   modulation current is externally adjustable.

1   16.   The LD/EAM driver of claim 13 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3   current control and the modulation current are externally

4   adjustable.

1   17.   The LD/EAM driver of claim 13 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3   current control and the modulation current are externally

4   adjustable by a single external adjustment.

1   18.   The LD/EAM driver of claim 13 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3 current control and the modulation current are independently

4 externally adjustable.

1 19. The LD/EAM driver of claim 13 further comprised of

2 a pulldown variance circuit coupled to the predriver, the

3 pulldown variance circuit causing a turnoff current of the

4 predriver to be larger than a turn-on current of the

5 predriver.

1 20. The LD/EAM driver of claim 19 further comprised of

2 a PTAT bandgap reference circuit to generate biasing currents

3 with positive temperature coefficients for the predriver gain

4 stages.

1 21. The LD/EAM driver of claim 20 wherein the pulldown

2 variance circuit is responsive to the output of the bandgap

3 reference.

1 22. A laser diode/electro-absorption-modulator (LD/EAM)

2 driver comprising:

3 a cascoded output switch having a pair of output devices

4 and a pair of cascode devices;

5 a resistor providing tail current to the output devices;

6 a predriver circuit receiving an input signal and

7 controlling the output devices;

8   a feedback circuit coupled to the resistor to control

9 the modulation current of the output devices by control of

10 bias on the predriver circuit;

11   a common mode feedback circuit providing modulation

12 dependent currents for the predriver;

13   a cascode bias circuit coupled to bias the cascode

14 devices to a bias voltage responsive to the power supply

15 voltage, the output bias current and the modulation current;

16   a PTAT bandgap reference circuit to generate biasing

17 currents with positive temperature coefficients for the

18 predriver gain stages; and,

19   a pulldown variance circuit coupled to the predriver,

20 the pulldown variance circuit causing a turnoff current of

21 the predriver to be larger than a turn-on current of the

22 predriver.

1   23. The LD/EAM driver of claim 22 wherein the

2 modulation current is externally adjustable.

1   24. The LD/EAM driver of claim 22 wherein the LD/EAM

2 driver is an integrated circuit and the predriver bias

3 current control and the modulation current are externally

4 adjustable.

1   25. The LD/EAM driver of claim 22 wherein the LD/EAM

2 driver is an integrated circuit and the predriver bias

3   current control and the modulation current are externally

4   adjustable by a single external adjustment.

1   26.   The LD/EAM driver of claim 22 wherein the LD/EAM

2   driver is an integrated circuit and the predriver bias

3   current control and the modulation current are independently

4   externally adjustable.

1   27.   The LD/EAM driver of claim 26 further comprised of

2   a PTAT bandgap reference circuit to generate biasing currents

3   with positive temperature coefficients for the predriver gain

4   stages.

1   28.   The LD/EAM driver of claim 27 wherein the pulldown

2   variance circuit is responsive to the output of the bandgap

3   reference.